

## 90 VOLT ABRUPT JUNCTION VARACTOR DIODES

### DESCRIPTION

The GC1800 series varactors are silicon abrupt junction devices. They offer the highest Q and lowest series resistance available in a 90 Volt silicon varactor.

### APPLICATIONS

The GC1800 series varactors are used for moderate band width tuning. They are available in values appropriate for VHF through KU band frequencies. These devices are best used in higher power voltage controlled oscillators, or voltage variable filters and phase shifters. The 90 Volt rating allows for the lowest IMD generation even at moderately high power levels.

Standard capacitance tolerance is  $\pm 10\%$ . Other capacitance values and custom mechanical configurations are also available. All specifications shown are based on style 30 package and include .18 pF case capacitance. Consult package outline section of this catalog for other case styles available. Complete electrical and mechanical data is also provided.

### RATINGS

Minimum Voltage Breakdown: 90 V at 10 $\mu$ A max

Maximum Leakage Current at:

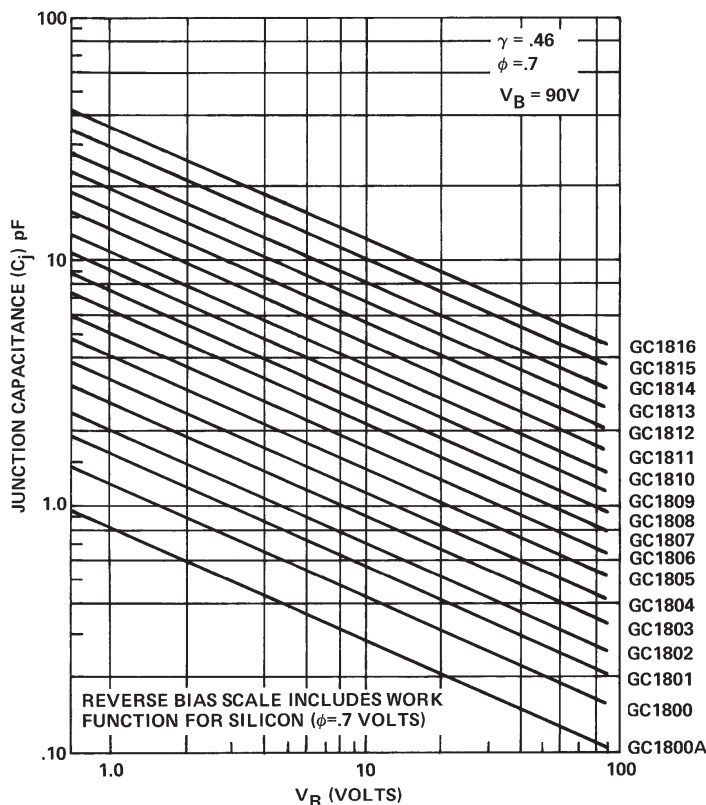
80 V and 25°C 0.02  $\mu$ A

80 V and 125°C 2.00  $\mu$ A

Capacitance-Temp. Coefficient: 300ppm/°C at  $V_R = -4V$

Operating Temperature: -55°C to +150°C

Storage Temperature: -65°C to +200°C



Typical Junction Capacitance vs Reverse Bias

# Tuning Varactors

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ELECTRICAL SPECIFICATIONS:  $T_A = 25^\circ\text{C}$

MODEL NUMBER <sup>1</sup>	TOTAL CAPACITANCE <sup>2</sup> (AT-4V, 1 MHz) $C_{T-4}$ (pF)	QUALITY FACTOR <sup>3</sup> (AT-4V, 50 MHz) $Q-4$ (MIN)	CAPACITANCE RATIO <sup>2</sup> $C_{T0}/C_{T90}$ (MIN)
GC1800A	0.6	1100	5.5
GC1800	0.8	1000	5.5
GC1801	1.0	1000	6.0
GC1802	1.2	900	6.0
GC1803	1.5	900	7.0
GC1804	1.8	850	7.0
GC1805	2.2	850	8.0
GC1806	2.7	800	8.0
GC1807	3.3	800	8.0
GC1808	3.9	700	8.0
GC1809	4.7	700	8.0
GC1810	5.6	650	8.5
GC1811	6.8	650	8.5
GC1812	8.2	600	8.5
GC1813	10.0	600	9.0
GC1814	12.0	550	9.0
GC1815	15.0	550	9.0
GC1816	18.0	550	9.5

### NOTES:

1. When ordering, specify the desired case style by adding its number as a suffix to the basic model number. Some limitations apply - consult factory for details.
2. These values include a package capacitance of 18 pF.
3.  $Q$  is calculated from:  $Q = \frac{1}{2\pi f R_s C_j}$  where  $f = 50$  MHz and  
 $R_s$  = Series resistance measured at 1 GHz using transmission loss techniques. Capacitance is measured at 1 MHz.

### SEMICONDUCTOR OPERATION

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